

TROPICAL EASTERLY JET LOCATED USING TOMS DATA

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The formative stages of the onset of the 1979 southwest monsoon was marked by a WNW-ESE oriented band of marine convection over the South Arabian Sea. This convection was first observed on June 10, 1979 using satellite cloud imagery. The marine convection appeared during a major acceleration of the upper troposphere easterly wind field.

A composite vertical meridional cross-section (approximately 70°E) of upper level winds for June 11, revealed the core of the Tropical Easterly Jet (TEJ) at 115 mb, 9 1/2°N. Time analysis of the upper level wind field over the Tropical Wind Observing Ship (TWOS) polygon show a lowering of both the pressure level of maximum wind and tropopause level with acceleration of the upper level easterlies. The tropopause was as much as 20 mb lower on the equatorial side of the TEJ.

Streamline analysis of the maximum observed easterly winds over India did not reveal the horizontal position of the TEJ. Careful analysis of Total Ozone Mapping Spectrometer (TOMS) data for June 11, 1979 showed relatively high values of ozone south of India. It was observed that the latitudinal position of the TEJ on June 11, at approximately 70°E coincided with the northern edge of relatively high ozone values. Using this as a reference, the TEJ core was identified as far as NE Bay of Bengal (the limits of the available TOMS data).